

**CONTROL TECHNOLOGY, INC.***demonstrating innovation and technical leadership*

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www.controltechnology.org

October 27, 2016

The Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

RE: Control Technology, Inc.
Application for Preliminary Permit
for the Blue Diamond Advanced Pumped Storage Project
FERC Project No. _____

Dear Secretary Bose:

With the expiration of the Preliminary Permit for Project No. 14344 filed by the International Consortium of Energy Managers ("ICEM"), and Pursuant to 18 C.F.R. §§ 4.32 and 4.81 (2016) of the Federal Energy Regulatory Commission's ("Commission") regulations, Control Technology, Inc., ("CTI") hereby submits for filing an application for a preliminary permit for the Blue Diamond Pumped Storage Project ("Project").

As explained below, the Commission issued an original license to Blue Diamond South Pumped Storage Company, Inc. and Blue Diamond Power Partners, L.P. ("Blue Diamond South") for a substantially similar project in Project No. 10756-001 on June 16, 1997. In 2005, that license was terminated by the Commission without any construction work having been started. In addition, the Preliminary Permit for Project No. 14344 was granted July 11, 2012, and so expired without progress by that sponsor.

1) DESCRIPTION OF THE PROJECT

The proposed Project is an approximately 500 MW pumped storage facility to be located in Clark County, Nevada. The proposed Project will involve the construction of closed-loop upper and lower reservoirs, utilizing water to be imported from an outside source for the specific needs of the Project. Additionally, the proposed site for the Project is the same site for which the Commission previously issued a license to Blue Diamond South in FERC Project No. 10756. Pumped storage is uniquely able to adjust to shifting demands for peak capacity due to its inherently fast ramping rates by using water previously stored for that purpose. Reaction times of seconds and minutes are typical rather than hours and days for thermal and nuclear, while at the same time allowing those other types of plants to continue to operate at their best efficiencies.

2) HISTORY OF THE PROJECT

On June 29, 1989, in FERC Project No. 10756, the Commission issued a preliminary permit for a substantially similar project to Blue Diamond South. Blue Diamond S. Pumped Storage Co., Inc., 47 FERC ¶ 62,314 (1989). Eight years later, on June 16, 1997, the Commission issued to Blue Diamond South an

The Honorable Kimberly D. Bose
October 27, 2016

Page 2

original license to construct, operate, and maintain that project. Blue Diamond S. Pumped Storage Co., Inc., 79 FERC ¶ 62,184 (1997). On May 19, 1999, in an unpublished order, the Commission granted Blue Diamond South a two-year extension of time to commence construction, with a deadline for completing construction set at June 16, 2004. On August 8, 2005, the Commission terminated Blue Diamond South's license. Blue Diamond S. Pumped Storage Co., Inc., 112 FERC ¶ 62,110 (2005). The Commission explained that "[b]ecause the 4-year statutory period during which the construction should have commenced has passed, the license must be terminated." Id.

Then, on January 6, 2009, the Commission issued a Preliminary Permit to the Nevada Hydro Company, Inc. for Project No. 13285, again, for a substantially similar project. This permit expired in 2012 without progress by that sponsor.

On July 11, 2012, the Commission issued the most recent Preliminary Permit to ICEM as Project No. 14344, also for a substantially similar project. This permit expired without progress as well.

In discussions with each of these former project sponsors, CTI has concluded, as had the Commission in 1997, that the site is constructible for a project described in each of these proceedings. However, it is clear that for both of these most recent sponsors, the issue that apparently could not be overcome was that of obtaining adequate development capital to enable the filing of a license application and ultimately construction of a facility the Commission might approve.

As CTI believes it has solved this overriding problem, in this application, CTI seeks a preliminary permit for the Blue Diamond Advanced Pumped Storage Project with a development plan that is substantially similar to the plan approved in the previous license and proposed in the previous application.

3) CONCLUSION

For the reasons stated in the application submitted herewith, the Commission should issue a preliminary permit to CTI.

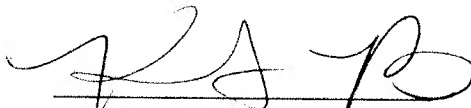
Respectfully submitted,

/s/ Rexford Wait
Rexford Wait

Enclosures

CERTIFICATE OF SERVICE

I, Kierstin Ross, hereby certify that on this 27th day of October 2016, I caused a true and correct copy of the foregoing letter to Secretary Kimberly D. Bose of even date and Application For Preliminary Permit, Blue Diamond Advanced Pumped Storage Project, to be served by first class mail, postage prepaid, upon the entities listed on the Service List attached hereto.


Kierstin Ross

Service List

Federal Energy Regulatory Commission San Francisco Regional Office 901 Market Street Suite 350 San Francisco, CA 94103	United States Department of the Interior Bureau of Land Management Nevada State Office 1340 Financial Blvd Reno, NV 89502
Clark County 500 S. Grand Central Pkwy Las Vegas, NV 89155	Las Vegas Valley Water District 1001 S. Valley View Blvd. Las Vegas, NV 89153
City of Las Vegas City Hall, Tenth Floor 400 Stewart Avenue Las Vegas, NV 89101	Southern Nevada Water Authority P.O. Box 99956 Las Vegas, NV 89193
City of North Las Vegas North Las Vegas City Hall 2200 Civic Center Drive North Las Vegas, NV 89030	Clark County Water Reclamation District 5857 E. Flamingo Road Las Vegas, NV 89122
City of Henderson Henderson City Hall 240 Water Street P.O. Box 95050 Henderson, NV 89009	Clark County Regional Flood Control 600 S. Grand Central Pkwy, Suite 300 Las Vegas, NV 89106
Town of Pahrump 400 N. Nevada Highway 160 Pahrump, NV 89060	Spring Valley Town Advisory Board 4925 Rivedro Street Las Vegas, NV 89135

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**APPLICATION FOR PRELIMINARY PERMIT
BLUE DIAMOND PUMPED STORAGE PROJECT**

**CONTROL TECHNOLOGY, INC.
BLUE DIAMOND, NEVADA**

David Kates
Rexford Wait
Control Technology, Inc.
2416 Cades Way
Vista, CA 92083
Tel: (760) 599-0086

October 27, 2016

**BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION**

**Application for Preliminary Permit
Blue Diamond Pumped Storage Project**

Initial Statement

- (1) Control Technology, Inc. ("CTI") applies to the Federal Energy Regulatory Commission ("Commission") for a preliminary permit for the proposed Blue Diamond Pumped Storage Project ("Project"), as described in the attached exhibits. This application is made in order that the applicant may secure and maintain a priority of application for a license for the Project under Part I of the Federal Power Act, while obtaining the data and performing the studies, consultations, and other acts required to support an application for a license.

- (2) The location of the proposed project is:

State or territory: Nevada

County: Clark

Township or nearby town: Blue Diamond
Las Vegas

Stream or other body of water: The Project will not be located on any natural body of water, but will consist of two man-made reservoirs with a connecting penstock.

- (3) The exact name, business address, and telephone number of the applicant are:

Control Technology, Inc.
2416 Cades Way
Vista, CA 92083
Tel: 760-599-0086
Fax: 760-599-1815

The exact name and business address of each person authorized to act as agent for the applicant in this application are:

Rexford Wait
David Kates

Control Technology. Inc.
2416 Cades Way
Vista, CA 92083
Tel: 760-599-0086
Fax: 760-599-1815

Copies of all pleadings and correspondence should be sent to the Applicant:

Mr. Kates and Mr. Wait should be included on the Secretary's Official Service List for this proceeding.

- (4) CTI is a domestic corporation and is not claiming preference under section 7(a) of the Federal Power Act.
- (5) The proposed term of the requested preliminary permit is 36 months.
- (6) There are no existing dams or project facilities. The proposed project is a pumped storage project and will not use a dam. Both the upper and lower reservoirs will be new construction.
- (7) CTI has or intends to obtain and will maintain any proprietary rights necessary to construct, operate, or maintain the Project.

Additional Requirements from 18 CFR 4.32

- (a)(2)(i) The name and address for the county in which any part of the Project and any Federal facilities that would be used by the Project, would be located are listed below:

Clark County
500 S. Grand Central Pkwy
Las Vegas, NV 89155

The Project is located within the boundaries of Clark County, Nevada.

- (a)(2)(ii) The names and addresses of every city, town, or similar local political subdivision with a population of at least 5,000 which is located within 15 miles of the Project are listed below:

City of Las Vegas
City Hall, Tenth Floor
400 Stewart Avenue
Las Vegas, NV 89101

City of North Las Vegas
North Las Vegas City Hall
2200 Civic Center Drive
North Las Vegas, NV 89030

City of Henderson
Henderson City Hall
240 Water Street
P.O. Box 95050
Henderson, NV 89009

Town of Pahrump
400 N. Nevada Highway 160
Pahrump, NV 89060

- (a)(2)(iii) The names and addresses of every irrigation district, drainage district, similar special purpose political subdivision in which any part of the Project would be located, or that owns, operates, maintains, or uses any project facilities that would be used by the Project are as follows:

Las Vegas Valley Water District
1001 S. Valley View Blvd.
Las Vegas, NV 89153

Southern Nevada Water Authority
P.O. Box 99956
Las Vegas, NV 89193

Clark County Water Reclamation District
5857 E. Flamingo Road
Las Vegas, NV 89122

Clark County Regional Flood Control
600 S. Grand Central Pkwy, Suite 300
Las Vegas, NV 89106

Spring Valley Town Advisory Board
4925 Rivedro Street
Las Vegas, NV 89135

- (a)(2)(iv) ICEM knows of no other political subdivision in the general area of the Project that there is reason to believe would likely be interested in, or affected by, the application.
- (a)(2)(v) ICEM knows of no Indian tribes that may be affected by the Project.

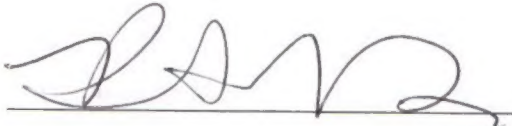
(a)(4) Verification

This Preliminary Permit Application is executed in the State of California, County of San Diego by:

Kierstin Ross
Controller
Control Technology Inc.
2416 Cades Way
Vista, CA 92083

Being duly sworn, deposes and says that the contents of this application are true to the best of his knowledge or belief. The undersigned applicant has signed the application this 27 day of October, 2016.

Control Technology Inc.

By: 

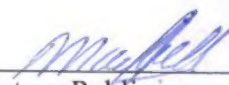
Kierstin Ross
Controller

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document, to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

Subscribed and sworn to before me, a Notary Public of the State of California this 27 day of October, 2016.

SEAL




Notary Public

My commission expires 10/30/2016

EXHIBIT 1

DESCRIPTION OF THE PROPOSED PROJECT

The proposed Project is an approximately 500 MW pumped storage facility to be located in Clark County, Nevada and calling for the construction of closed-loop upper and lower reservoirs, utilizing water to be imported from an outside source for the specific needs of the Project on the same site the Commission previously issued a license for the Blue Diamond South Pumped Storage Project, FERC Project No. 10756. This license was terminated by the Commission without any construction work having been started.

With this application CTI seeks a preliminary permit for the Blue Diamond Advanced Pumped Storage Project with an essentially identical development plan as was approved in the previous license.

The proposed Blue Diamond Pumped Storage Project will be a new construction comprised of the following components:

(1) Dams and Other Structures

a. Dams

No new dams, per se, will be constructed. However, new upper and lower storage reservoirs will be built as impermeable membrane-lined ponds. The purpose of these reservoirs will be to provide storage of water for the operation of the pumped storage facility.

b. Penstocks

The proposed project will require the installation of penstocks to act as water conduits between the upper reservoir, powerhouse and the lower reservoir. There will be a single upper (pressure side) penstock, with intake/exit works located in the upper reservoir, that will be bifurcated upstream of the powerhouse in order to be connected to the two generating/pumping units. The tailrace penstock on the downstream (low pressure) side of the powerhouse will be connected to the two draft tubes of the units and will then merge into one penstock that will have its intake/exit works in the lower reservoir. The penstock diameter will be approximately 21 feet and will be optimized for the estimated flow rates for the plant, 4100 cfs when generating and 3050 cfs when pumping each unit, and will be equally divided between the two units. The penstocks will be a combination of concrete-lined and steel-lined tunnels extending approximately 4,300 feet in total length.

c. Powerhouse

The concrete construction powerhouse will be located underground to suit the required the approximately 160 feet of submergence of the pump/turbines below the level of the lower reservoir. It will be approximately 200 feet by 100 feet in footprint and 150 feet in height.

d. Powerhouse equipment

The powerhouse will contain two vertical single-stage reversible Francis-type pump/turbines directly connected to vertical synchronous generator/motors operating at 20 kV and rated for continuous operation at all power levels across the design head range. Unit start as a pump will be assisted by a Static Frequency Converter. All equipment, mechanical, electrical, electronic and hydraulic, will be of most modern design and according to all relevant industry and governmental standards.

(2) Reservoirs

Two storage reservoirs of identical volume will be constructed as the forebay and afterbay of the proposed pumped storage facility. The impoundments will utilize the available topography to the extent practical and will be a mass earthwork balance providing for excavation materials to be used in the construction of the dikes. The impoundments will be completely lined with an impermeable membrane. It also is foreseen that this membrane will be extended as a cover to prevent evaporation. Initial and make-up water will be either hauled via existing roads or, preferably, will be piped in through a pipeline.

The preliminary selection of the reservoirs location results in the following data:

	Upper	Lower
Live Storage Capacity (Acre Feet):	4,900	4,900
Reserve Capacity (Acre Feet):	500	500
Normal maximum elevation (Feet MSL):	4,810	3,320
Normal minimum elevation (Feet MSL):	4,760	3,270
Gross head, maximum (Feet):	1540	
Gross head, minimum (Feet):	1440	

Due to the desert climate, it is anticipated that the surface of the upper reservoir, and also possibly the lower reservoir, will be covered by a floating membrane in order to mitigate evaporative losses.

(3) Transmission Lines

CTI proposes to extend a 132 kV transmission line from the facility approximately 3.5 miles to the East and interconnect at an existing substation operated by the Nevada Power Company.

(4) Plant Capacities

The proposed Blue Diamond project will operate with the following characteristics:

Total plant capacity, generating:	450 MW
Total plant capacity, pumping:	420 MW
Typical net head, generating:	1,475 feet
Typical net head, pumping:	1,505 feet
Typical flow, (generating):	4,100 cfs
Typical flow, (pumping):	3,050 cfs

Daily generation (10 hours):	4,500 MWH
Daily Pump input (14 hours):	5,600 MWH

The reservoir volume will match the daily flow capacities in both generation and pumping so that the level in the upper reservoir is restored at the end of each twenty-four-hour cycle, and assumes five-day operating weeks. Alternatively, and depending on the market conditions, five-day generating and six-day pump cycles or some other alternative usage scenarios may be employed.

(5) Public Lands

Public Lands affected by the proposed development include:

BLM – T21S, R59E, sections 25, 27-29, 31-36
BLM – T22S, R59E, Sections 3, 6, 7, 10, 11, 14 and 15

(6) Utilization of Water Resources

Modern thermal generating plants are most efficient and trouble free when constantly operating as close as possible to full rated capacity and, therefore are most effective when providing base load power. With the ever-increasing need for additional capacity and given that thermal (and nuclear) plants are all unsuitable for load following as daily demands cycle dictate, pumped storage can provide the best available solution. Pumped storage is uniquely able to adjust to shifting demands for peak capacity due to its inherently fast ramping rates by using water previously stored for that purpose. Reaction times in seconds and minutes are typical rather than in hours and days for thermal and nuclear, while at the same time allowing the other plants to continue to operate at their best efficiencies.

EXHIBIT 2

DESCRIPTION OF STUDIES, TESTS, AND SURVEYS TO BE CONDUCTED

(1) General Requirement

During the 36-month term of the Preliminary Permit, studies will be conducted to review and update the aspects of the Project. These studies will be both desk-top and field investigations to refine preliminary estimates of plant capacity, energy generation and consumption, facility arrangements, costs, schedule, and environmental and/or institutional constraints. Much of this effort will be to review existing data and to re-open discussions and consultations that were addressed in the previous FERC license with the intent of re-confirming and/or updating agreements, permits, feasibility, data, and the like.

Provided that the above-mentioned studies yield a conclusion that the Project is feasible, a license application will be submitted to the Federal Energy Regulatory Commission.

i) Study Plan

- Determine technical and economic feasibility.
- Consultation with all appropriate state, federal, and local resource agencies and non-governmental organizations that have an interest in the development of the Project.
- Consultation with appropriate state and federal agencies, update past studies of fish, wildlife, botanical, cultural, aesthetic and recreational resources.
- Conduct any additional geotechnical studies as necessary.
- Financial modeling and consultation with load serving entities.

ii) No new roads will be constructed for the investigation.

(2) Work Plan for New Dam Construction

Although the upper reservoir will require a structure for containment of the water at certain locations, no new dam per se is required for the Project, therefore CTI has not prepared a work plan for new dam construction.

(3) Waiver

CTI will not perform or require test pits, borings, or other foundation exploration in the field during the feasibility study. Activities performed during the preliminary permit stage will not adversely affect cultural resources or endangered species and it is requested that the Commission waive the requirements of paragraph (c)(2), pursuant to 18 C.F.R. § 385.207.

(4) Statement of Costs and Financing

1. The estimated cost of carrying out the studies and investigations outlined in this Exhibit 2 is \$2,700,000. This cost will include purchased services such as legal advice, geological studies, land surveys, engineering and technical consultation, financial modeling, power marketing consultation, etc.
2. CTI will self-finance the studies and investigations outlined in this Exhibit 2.

EXHIBIT 3

PROJECT MAPS AND DRAWINGS

(1) Location of the Project

Please refer to maps and sketches below in this Exhibit 3.

Figure 1: Project Location Map

Figure 2: Project Study Area

Figure 3: General Arrangement

Figure 4: General Arrangement Sections

Figure 5: Proposed Project Boundaries

(2) Relative Locations and Physical Interrelationships

Please refer to maps and sketches identified in (1) above.

(3) Proposed Project Boundary

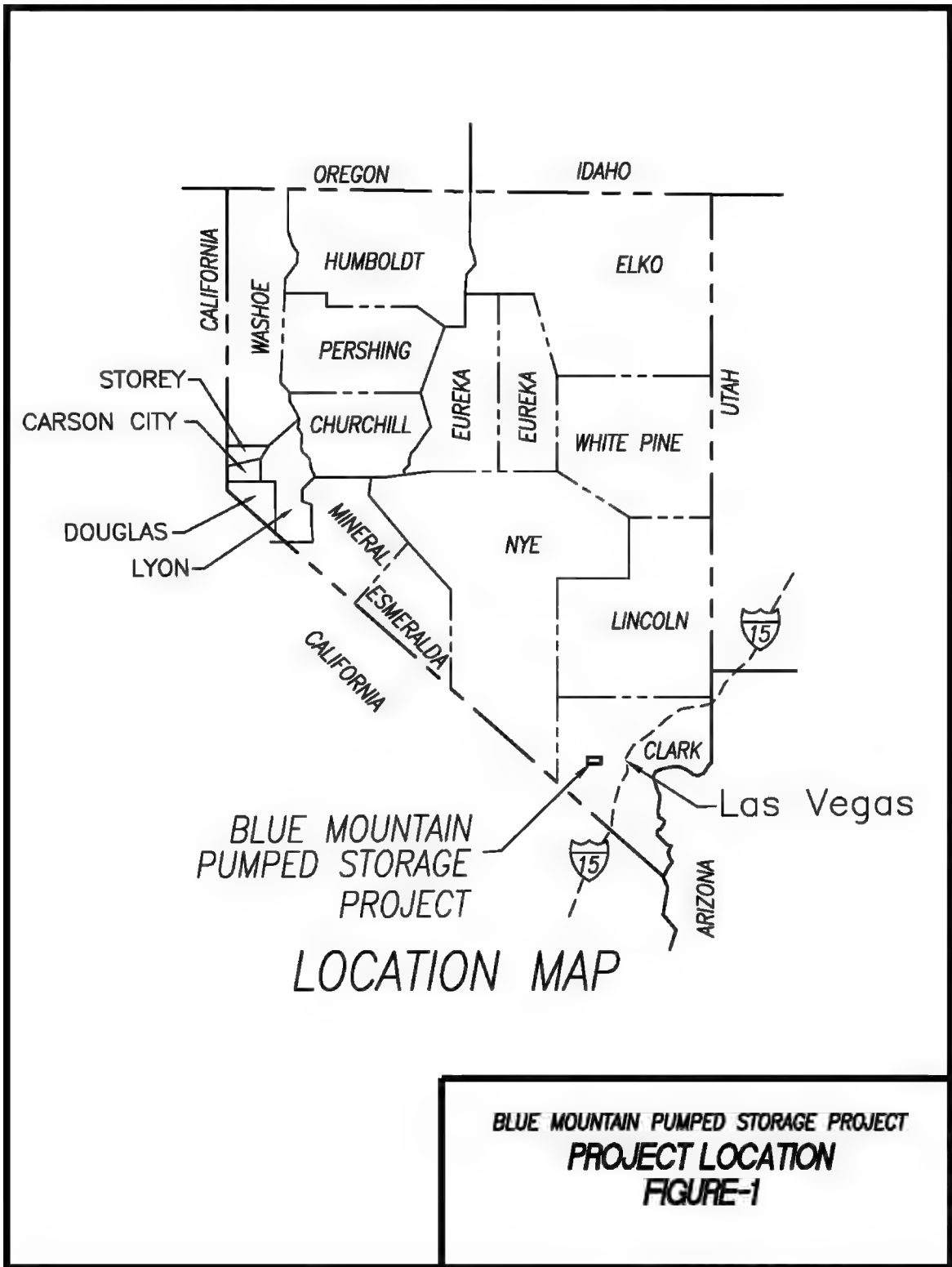
The proposed project boundary is shown on the Figure 5 below. Please also refer to Exhibit 1(5) for additional details. CTI recognizes that certain portions of BLM land in the area of the future upper reservoir are currently used for mining operations and CTI will coordinate with the responsible BLM office to ensure that the interests of concerned parties are accommodated. Other potential locations can be considered for the location of the upper reservoir, if needed.

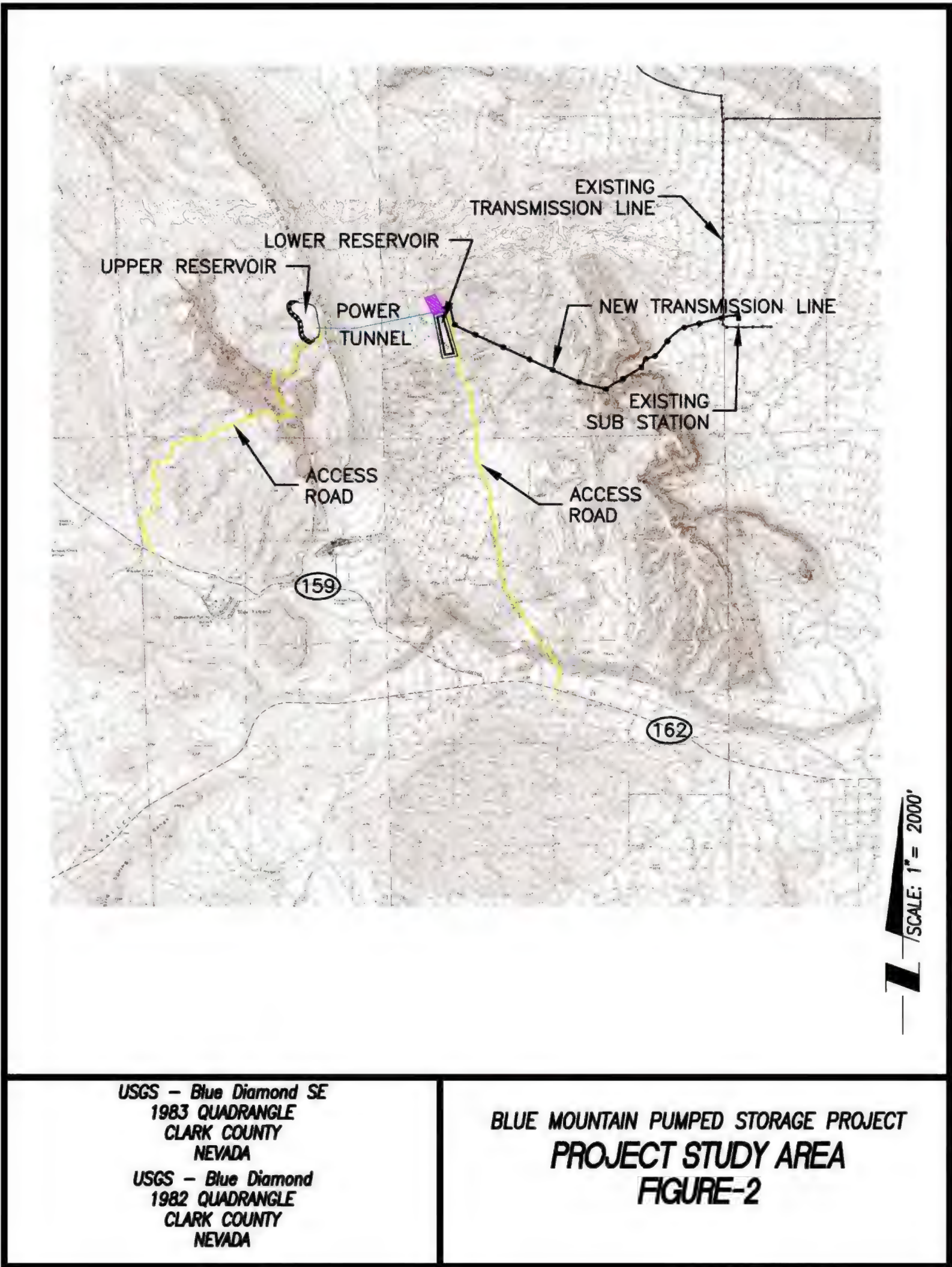
(4) National Wild and Scenic River System

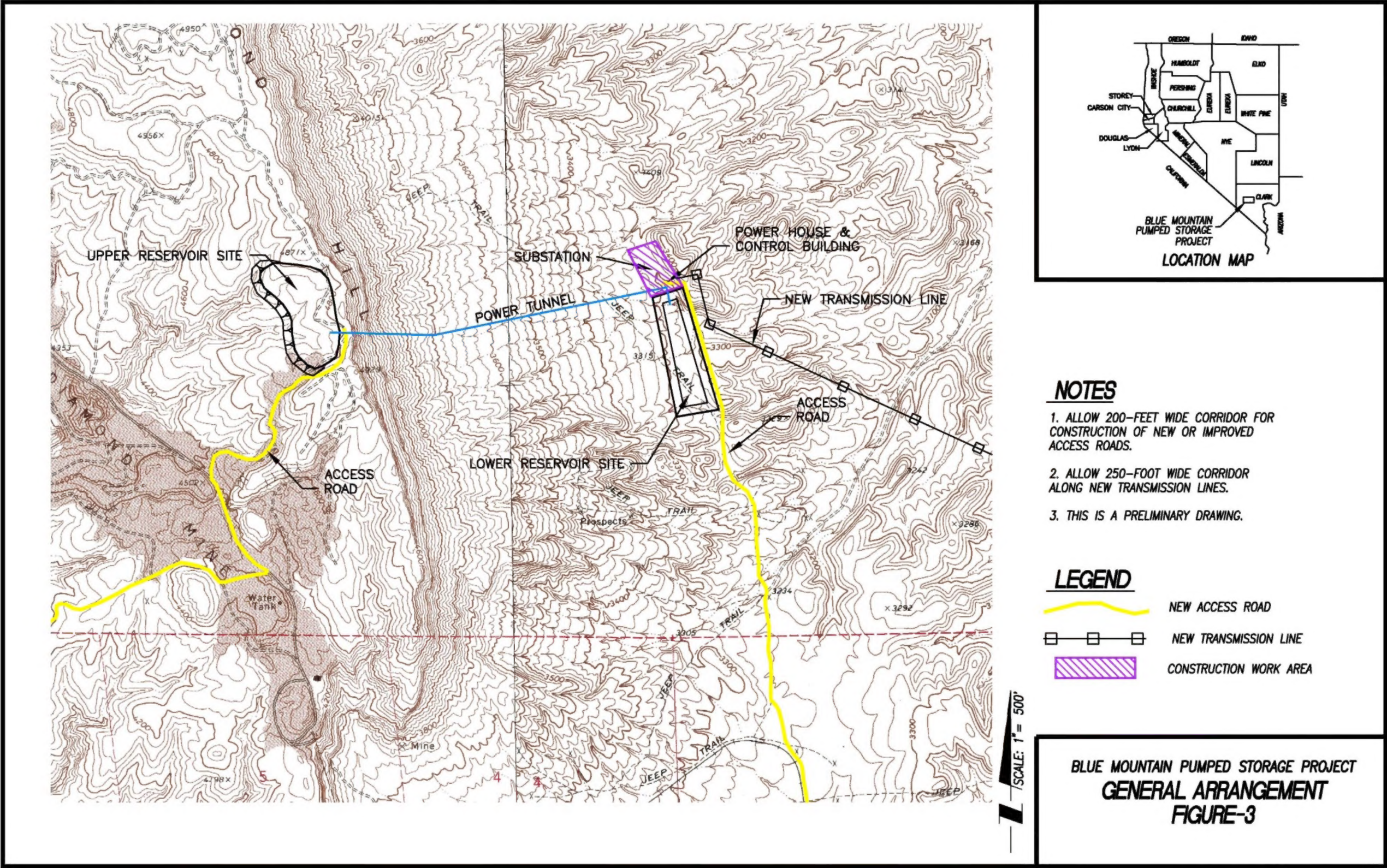
CTI is not aware of any area within or in the vicinity of the Project Boundary having been included in or designated for inclusion in the National Wild and Scenic Rivers System.

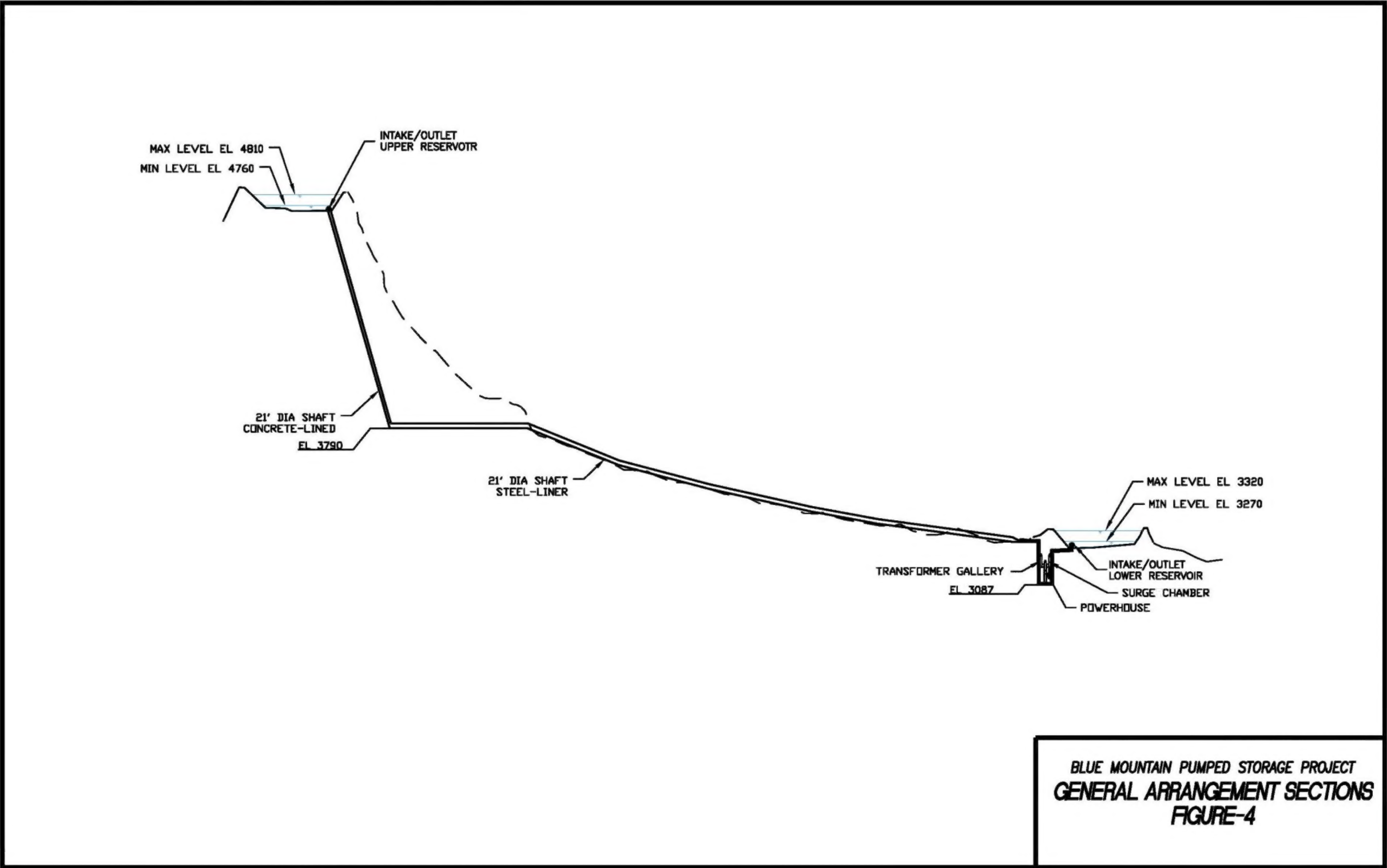
(5) Wilderness Act

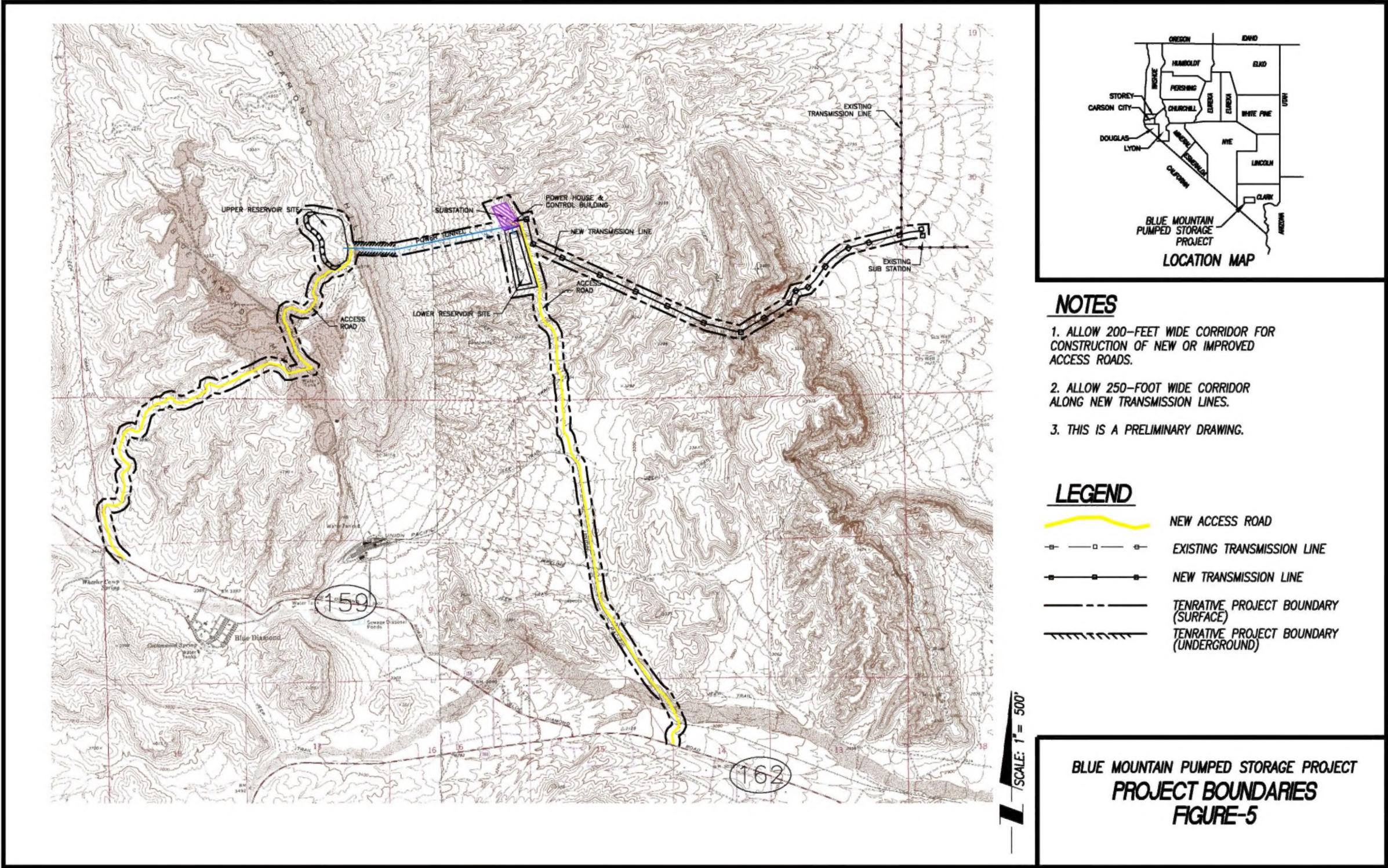
CTI is not aware of any area within or in the vicinity of the Project Boundary that, under the provisions of the Wilderness Act, has been designated as wilderness area, recommended for designation as wilderness area, or designated for wilderness study.











Document Content(s)

Blue Dimond Prelim Permit Application.PDF1